

6.6 Example F: Unidirectional Laminate Problem

Sample Input File For A Laminate Problem

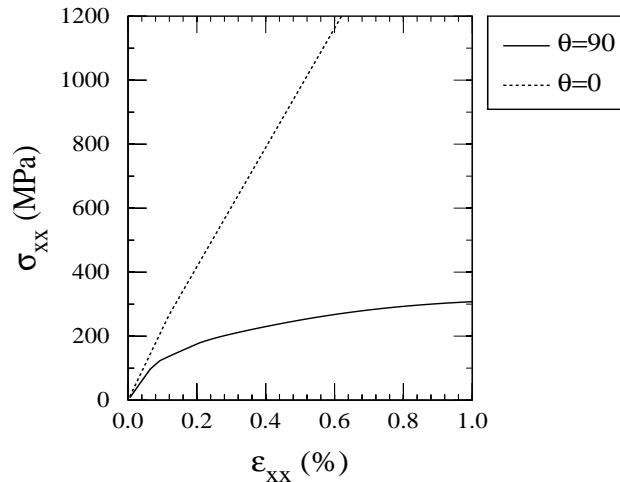
The following example is used to explain the control blocks in more detail.

Problem Summary:

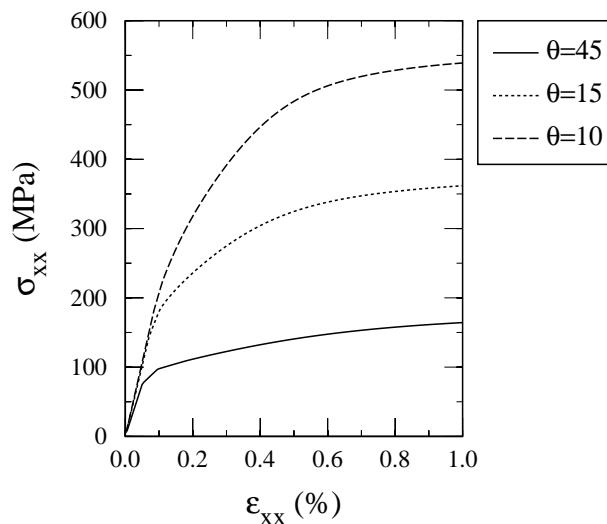
Load Type:	Mechanical
Load History:	Monotonic
Load Control:	Strain
Load History Data:	$\dot{\epsilon} = 0.01/\text{sec}$, $\epsilon_{max} = 0.01$, $\Delta t_{constant} = 0.00025 \text{ sec}$
Micromechanics model:	Laminate Theory
Fiber Packing Arrangement:	Square Pack at 46% fiber volume ratio
Integration Algorithm:	Forward Euler
Constituent Material Model:	Bodner-Partom
Constituents:	Fiber: Boron Matrix: Aluminum (6061-0a)

test of laminate strain control
*PRINT
 NPL=0 %
*LOAD
 LCON=2 LOP=1 LSS=1 %
*MECH
 NPTW=2 TI=0.,1. LO=0.,0.01 %
*MODEL
 MOD=3 MATSYS=1 NLY=1 THK=1. CON=2 SYS=1 ANG=45. %
MOD=3 MATSYS=1 NLY=1 THK=1. CON=2 SYS=1 ANG=0. %
MOD=3 MATSYS=1 NLY=1 THK=1. CON=2 SYS=1 ANG=90. %
MOD=3 MATSYS=1 NLY=1 THK=1. CON=2 SYS=1 ANG=10. %
*SOLVER
 NTF=1 NPTS=2 TIM=0.,1. STP=0.00025 %
*FIBER
 NFIBS=1
 NF=1 MS=1 MF=6 NDPT=1 TEMP= 21. MAT=A %
*MATRIX
 NMATX=1
 NM=1 MS=1 MM=1 NDPT=1 TEMP= 21. MAT=C %
*MRVE
 IDP=1
 L=1 VF=0.46 %
*CURVE
 NP=10 %
*MACRO
 NT=1
 NC=1 X=1 Y=7 NAM=apdxf %
*END

The following figures were obtained from the x-y plot data file produced by the present example. The validity of these predictions were assessed by comparing these results to those previously obtain from:



reference 1 Fig. 8-5, pg. 235



reference 1 Fig. 8-7, pg. 237